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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/940,748	08/28/2001	Christopher J. Bradford	IN-5475	5758

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EXAMINER

BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
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1711

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/940,748		BRADFORD ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Susan W Berman		1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____                                    |

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***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 13, 14-16 and 19-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 15 and 16: The abbreviation "UV" should be replaced with "ultraviolet" because the abbreviation renders the claims indefinite. There is no antecedent basis in claim 4, which recites a ratio "less than 1.00", for recitation of a the ratio "from 0.75 to 1.00" in claim 5 because 1.00 is not "less than 1.00".. Claim 19 is rendered indefinite by the use of the abbreviations "SMC" and "BMC". In claim 13, line 2, it is not clear what total the "5% by" is intended; it appears that some words were left out.

Claims 14 and 20-23 recite a method of making a coated substrate but fail to set forth how the coating is obtained from the composition applied to the substrate. A method step for curing the uncured composition must be set forth to provide a "coated substrate". If not, the claims set forth a substrate having an uncured composition thereon. The claim language in claims 20, 21, 22 and 23 is confusing for the following reasons. In claim 20, it is not clear what applicant intends to add to the method of claim 15. Claim 15 already includes applying a coating composition to a substrate and exposing the composition to UV radiation to provide a cured composition on the substrate (i.e., a coated substrate). Does applicant intend to set forth a method of overcoating or topcoating by applying a second composition to the UV cured coated substrate and curing the second composition to provide a second coating on the substrate? It is not clear, in claim 21, what applicant intends to add to the method of claim 16. Claim 16 already includes applying a coating composition to a substrate and exposing the composition to UV radiation and heat to provide a cured composition on the substrate (i.e., a coated substrate). Does applicant intend to set forth a method of overcoating by applying an second composition to the coated substrate and curing the

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second composition to provide a second coating on the substrate? With respect to claim 22, it is not clear how the coated substrate of claim 20 can be coated with a basecoat coating composition. How can a basecoat composition be applied after the substrate is coated by applying and curing a composition thereon? It is not clear, in claim 23, what applicant intends to add to the method of claim 20. Claim 20 already includes applying a coating composition to a substrate and exposing the composition to UV radiation and heat to provide a cured composition on the substrate (i.e., a coated substrate). Does applicant intend to set forth a method of overcoating by applying a second clearcoat composition to the coated substrate and curing the second composition to provide a second clearcoating on the substrate over the coating composition of claim 1?

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lahrmann et al (5,425,970) teach that the radiation curable binders in the disclosed compositions can contain further functional groups accessible to chemical crosslinking and that external crosslinking agents can be added. Binders not susceptible to radiation curing and providing a non-radiation-induced curing reaction through functional groups, such as hydroxyl, oxirane or isocyanate, may also be added. See column 5, line 4, to column 7, line 11. Lahrmann et al disclose, in Example 6, a composition comprising a urethane acrylate containing hydroxyl functional groups corresponding to applicant's component (a1), acrylate-functional

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monomers and a polyisocyanate curing agent (corresponding to applicant's component (a3)) that is irradiated and then heated to provide a high gloss surface.

Lahrman et al teach compositions that may comprise components corresponding to each of (a1), (a2) and (a3) set forth in instant claim 1. Example 6 clearly shows a composition comprising a radiation curable urethane acrylate having hydroxyl functional groups in combination with a polyisocyanate and dual cure of the composition. Lahrman et al do not require employing a radiation curable prepolymer containing further isocyanate-reactive functional groups or selecting a polyisocyanate as the external crosslinking agent or including a non-radiation curable binder having functional groups reactive with the isocyanate groups. However, It would have been obvious to one skilled in the art at the time of the invention to provide a composition comprising components corresponding to instantly claimed (a1) and (a3) selected from the prepolymers and crosslinking agents taught by Lahrman et al because such a composition is taught in Example 6. It would further have been obvious to one skilled in the art at the time of the invention to include a non-radiation curable binder containing functional groups reactive with a polyisocyanate, as taught by Lahrman et al in column 6, lines 43, to column 7, line 5, of the disclosure because a polyisocyanate is used as crosslinking agent in Example 6. One of ordinary skill in the art at the time of the invention would have been motivated by the teaching of Lahrman et al to provide a composition curable by radiation and heat to provide an initial gel and avoid sagging on lacquer coated vertical surfaces or to allow flash off of solvents, as taught in column 7, line 44, to column 8, line 34. Lahrman et al do not teach the instantly claimed ratio of NCO groups to isocyanate reactive groups. However, It would have been obvious to one skilled in the art at the time of the invention to determine the ratio required in order to obtain the extent of crosslinking desired for a particular application because chemical crosslinking of isocyanate groups and isocyanate reactive groups is well known in the art.

Claims 1-6, 11, 14-16 and 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sirkoch et al (4,634,602). Sirkoch et al disclose dual curable compositions comprising a radiation sensitive compound, a radiation insensitive compound containing hydroxyl groups and a crosslinking agent selected from aminoplast resins and blocked isocyanates. The radiation sensitive compounds disclosed include ethylenically unsaturated polyurethanes having hydroxy functional groups (columns 2-6). See column 2, lines 46-50, column 3, lines 10-14, lines 52-56 and column 6, lines 15-19. Sirkoch et al teach partially curing the primer composition with radiation, applying a topcoat composition and thermally curing the composite (see Examples 5C, 6 and 7B).

Sirkoch et al do not require that the radiation sensitive compound contain hydroxyl groups or other isocyanate-reactive groups, however, It would have been obvious to one skilled in the art at the time of the invention to include ethylenically unsaturated polyurethanes having hydroxy functional groups in the compositions disclosed by Sirkoch et al, as taught in Example 1. Sirkoch et al do not teach a required ratio of isocyanate groups to reactive functional groups in the disclosed compositions, however, It would have been obvious to one skilled in the art at the time of the invention to determine the ratio required in order to obtain the extent of crosslinking desired for a particular application because chemical crosslinking of isocyanate groups and isocyanate reactive groups is well known in the art.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE Patent 00 333 (translation supplied by applicant). DE '333 discloses compositions for SMC and BMC coating comprising component (a1) corresponding to instantly claimed component (a1), component (a2) corresponding to instantly claimed component (a3) and component (a7) corresponding to instantly claimed component (a2). The same tradenamed materials are employed as disclosed in the instantly claimed invention.

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DE '333 does not mention a ratio corresponding to "UV/TH" set forth in instant claim 1.

However, the compositions disclosed would be expected to provide the UV/TH ratio set forth in the instant claims in the absence of evidence to the contrary because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring. Alternatively, It would have been obvious to one skilled in the art at the time of the invention to determine the ratio of UV curable groups to thermally curable groups required to obtain the desired degree of crosslinking in the cured product. With respect to claims 11-14, DE '333 does not teach a required ratio of isocyanate groups to reactive functional groups in the disclosed compositions, however, It would have been obvious to one skilled in the art at the time of the invention to determine the ratio required in order to obtain the extent of crosslinking desired for a particular application because chemical crosslinking of isocyanate groups and isocyanate reactive groups and the effects thereof are well known in the art. With respect to claims 18-21, DE '333 does not mention the polydispersity of component a7, however, It would have been obvious to one skilled in the art at the time of the invention to select thermally curable binder components having these features in order to avoid yellowing upon irradiation and to control the amount of crosslinking.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE Patent 99 141 (translation supplied by applicant). DE '141 discloses compositions for SMC and BMC coating comprising component (a1) corresponding to instantly claimed component (a1), component (a2) corresponding to instantly claimed component (a3) and component (a7) corresponding to instantly claimed component (a2). The same tradenamed materials are employed as disclosed in the instantly claimed invention.

DE '141 does not mention a ratio corresponding to "UV/TH" set forth in instant claim 1.

However, the compositions disclosed would be expected to provide the UV/TH ratio set forth in the

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instant claims in the absence of evidence to the contrary because the compositions comprise the kinds of functional groups set forth in the instant claims and disclose curing the disclosed compositions with UV radiation and thermal postcuring. Alternatively, It would have been obvious to one skilled in the art at the time of the invention to determine the ratio of UV curable groups to thermally curable groups required to obtain the desired degree of crosslinking in the cured product. With respect to claims 11-14, DE '141 does not teach a required ratio of isocyanate groups to reactive functional groups in the disclosed compositions, however, It would have been obvious to one skilled in the art at the time of the invention to determine the ratio required in order to obtain the extent of crosslinking desired for a particular application because chemical crosslinking of isocyanate groups and isocyanate reactive groups and the effects thereof are well known in the art. With respect to claims 18-21, DE '141 does not mention the polydispersity of component a7, however, It would have been obvious to one skilled in the art at the time of the invention to select thermally curable binder components having these features in order to avoid yellowing upon irradiation and to control the amount of crosslinking.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).



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Claims 1-25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of copending Application No. 09/941118. Although the conflicting claims are not identical, they are not patentably distinct from each other because because components a1, a2 and a3 as recited in claim 1 of S.N. '118 can be the same as components a1, a2 and a3 in S.N. '748. Component a1 comprising at least two radiation activatable functional groups in SN '118 comprises components also containing one or more isocyanate-reactive functional groups, as set forth in claim 6 of SN '118 and in claim 1 of SN '748. Component a3 as defined in claim 1 and claim 4 of SN '118 corresponds to component a3 set forth in claim 1 of SN '748. Component a2 as defined in claims 1, 5, 6 and 13 of SN '118 provides component a2 as set forth in claims 1 and 13 of SN '748. Also, claims 14-18 of SN '118 set forth ratios of NCO groups to isocyanate groups in the components of the composition that correspond to the ratios set forth in the claims of SN '748. It would have been obvious to one skilled in the art at the time of the invention to provide a composition comprising the components a1, a2 and a3 as set forth in the claims of SN '118 corresponding to the compositions set forth in the claims of SN '748.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-32 of copending Application No. 09/941283. Although the conflicting claims are not identical, they are not patentably distinct from each other because components a1, a2 and a3 as recited in claim 1 of S.N. '283 can be the same as components a1, a2 and a3 in S.N. '748. Component a1 comprising at least two radiation activatable functional groups in SN '283 comprises components also containing one or more isocyanate-reactive functional groups, as set forth in claim 8 of SN '283 and in claim 1 of SN '748. Component a3 as defined in claim 1 and claim 10 of SN

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'283 corresponds to component a3 set forth in claim 1 of SN '748. Component a2 as defined in claims 1, 7 and 10 of SN '283 provides component a2 as set forth in claim 1 of SN '748. Also, claims 11-14 of SN '283 set forth ratios of NCO groups to isocyanate groups in the components of the composition that correspond to the ratios set forth in the claims of SN '748. It would have been obvious to one skilled in the art at the time of the invention to provide a composition comprising the components a1, a2 and a3 as set forth in the claims of SN '283 corresponding to the compositions set forth in the claims of SN '748.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of copending Application No. 09/941295. Although the conflicting claims are not identical, they are not patentably distinct from each other because components a1, a2 and a3 as recited in claim 1 of S.N. '295 can be the same as components a1, a2 and a3 in S.N. '748. Component a1 comprising at least two radiation activatable functional groups in SN '295 comprises components also containing one or more isocyanate-reactive functional groups, as set forth in claim 19 of SN '295 and in claim 1 of SN '748. Component a3 as defined in claim 1 and claim 5 of SN '295 corresponds to component a3 set forth in claim 1 of SN '748. Component a2 as defined in claims 1, 7 and 10 of SN '295 provides component a2 as set forth in claims 1 and 7 of SN '748. Also, claims 11-15 of SN '295 set forth ratios of NCO groups to isocyanate groups in the components of the composition that correspond to the ratios set forth in the claims of SN '748. It would have been obvious to one skilled in the art at the time of the invention to provide a composition comprising the components a1, a2 and a3 as set forth in the claims of SN '295 corresponding to the compositions set forth in the claims of SN '748.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nativi (4,424,252) discloses compositions having a built-in secondary cure mechanism comprising a urethane (meth)acrylate and a polyisocyanate. One of the secondary cure mechanisms is provided by the urethane links in the urethane (meth)acrylate that react with free isocyanate in the polyisocyanate to form allophanates (column 9, lines 12-20). Surfactants having pendent free hydroxyl groups available to react with free isocyanate in the polyisocyanate can be included in Part A for optimum performance; however, binders containing reactive groups are not mentioned (column 7, lines 5-29).

DE 99 141 (translation of Application No. DE19920799 provided by applicant) discloses dual curing coating compositions for coating SMCs and BMCs. Claim 2 sets forth that the functional groups a11 comprise olefinically unsaturated groups or epoxide groups, functional groups a12 comprise hydroxyl groups and complimentary functional groups a22 comprise isocyanate groups. See Example 1 and claims 1-5. The difference is that DE '141 does not teach a component having at least two radiation activatable bonds and one or more isocyanate-reactive groups (applicant's a1).

Skinner et al disclose interpenetrating dual cure compositions comprising a difunctional radiation sensitive diluent, a saturated polyol and a polyisocyanate. Skinner et al do not teach a radiation curable component containing one or more isocyanate-reactive groups.

Palazzotto et al (4,985,340) disclose compositions comprising polyurethane precursors and an ethylenically unsaturated monomer. Palazzotto et al do not teach ethylenically unsaturated monomers containing one or more isocyanate-reactive groups. The disclosed compositions are cured by exposure to radiation or to heat in the presence of two different kinds of photoinitiator.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462.

The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.



Susan W Berman

Primary Examiner

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SB

10/21/02